

Coding Issues Involving Non-invasive Ventilation

**American College of Chest
Physicians**

American Thoracic Society

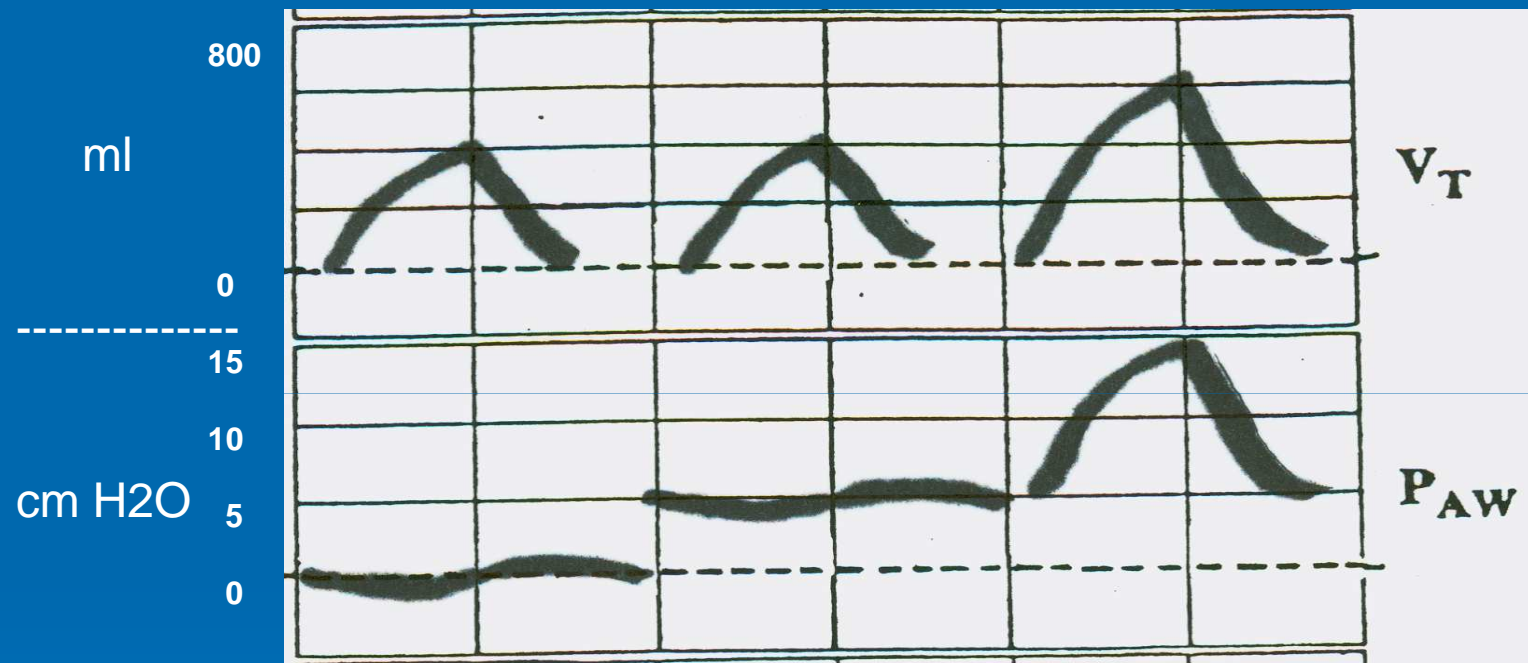
**National Association of Medical
Direction for Respiratory Care**

Comments/Questions



Definitions

- CPAP – continuous positive airway pressure
 - Inspiratory pressure = expiratory pressure
 - Stabilize airways, alveoli
 - Artificial airway or mask
- PPV - positive pressure ventilation (mechanical ventilation using positive pressure)
 - Inspiratory pressure > expiratory pressure
 - Assist ventilatory muscles
 - Artificial airway or mask



No Rx

CPAP

PPV

Breathing work: Pt. does all

Pt. does all

Pt. does some/none
Vent does some/all

Ventilator Designs

- CPAP only devices
 - Usually for mask use, can be used with artificial airway
- PPV devices

CPAP Only Devices



Ventilator Designs

➤ CPAP only devices

- Usually for mask use, can be used with artificial airway

➤ PPV devices

- Can also provide CPAP
- Can be used with mask or artificial airways
 - Some marketed for mask use (BiPAP, BILEVEL brands)
 - Some marketed for artificial airways in ICU
- PEEP is an ↑expiratory pressure with PPV

PPV Devices



Marketed for mask

Marketed
for ICU



***All PPV devices have similar features,
regardless of marketing target***

Ventilator-Patient Interfaces

- Artificial airways for invasive PPV
 - Endotracheal tube – placed through nose and mouth into trachea
 - Tracheostomy – placed through neck into trachea
- Mask for non-invasive PPV
 - Placed on nose/mouth/face/head

Patient on Noninvasive PPV with Oro-nasal Face Mask

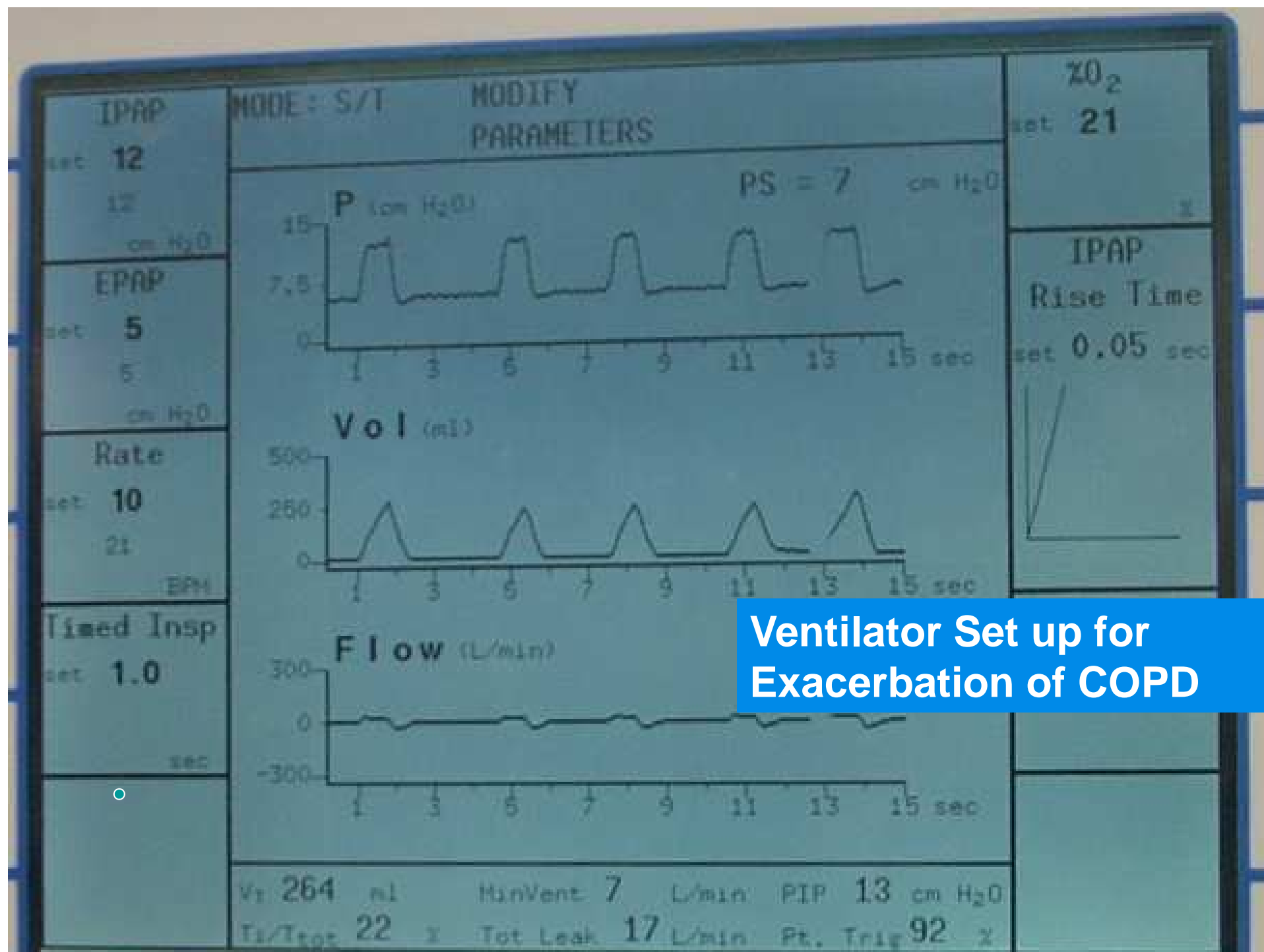


Another Patient on Noninvasive PPV with “Total Face” Mask

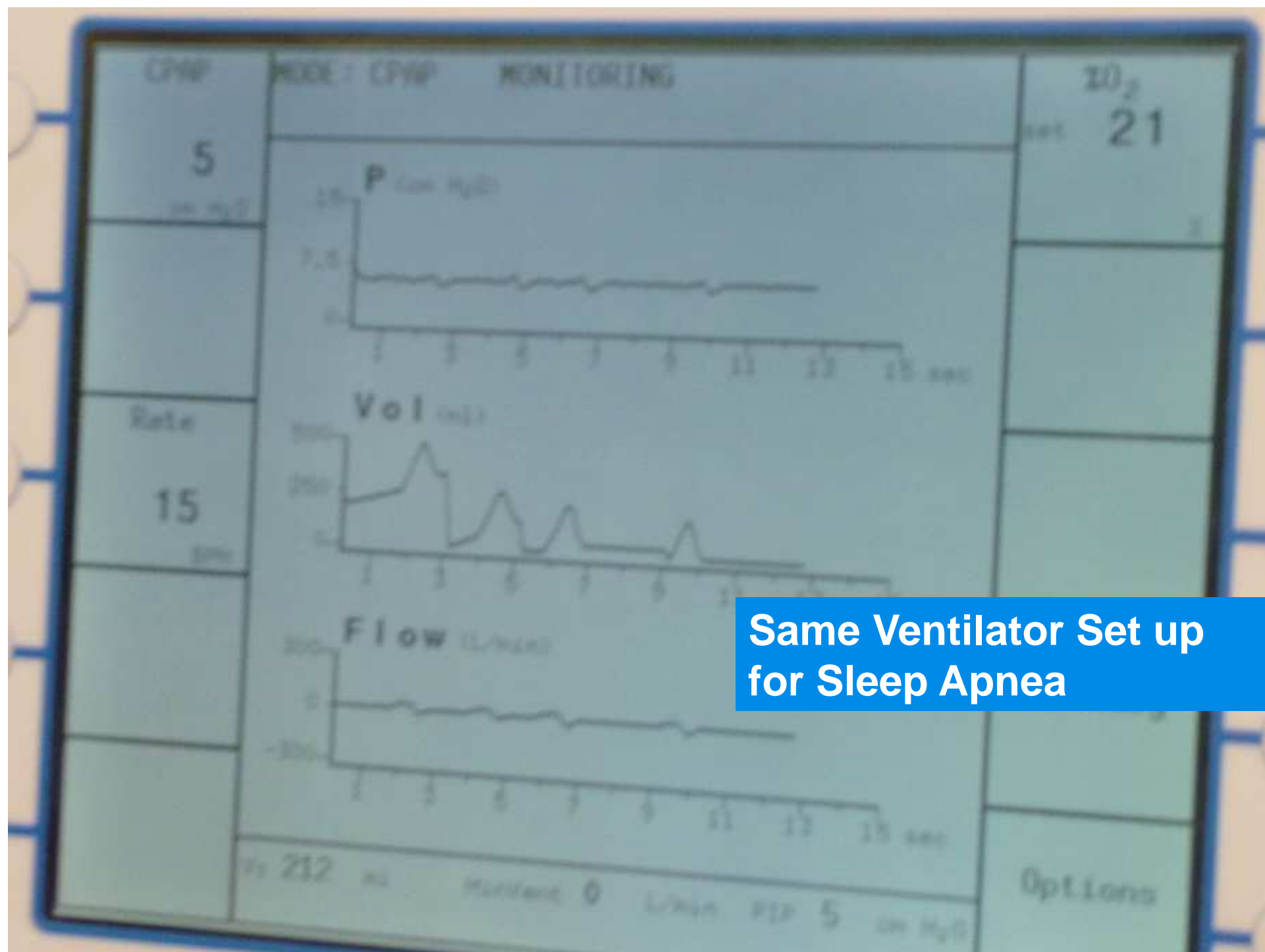


Patient with Invasive PPV through tracheostomy





**Ventilator Set up for
Exacerbation of COPD**



Mask CPAP and PPV usage

➤ CPAP by mask:

- Nocturnal use for OSA

Low Intensity use

- Inpatient use in inpatient ward for pulmonary edema

High Intensity use

➤ PPV by mask:

- Nocturnal use for OSA (occasionally COPD)

Low Intensity use

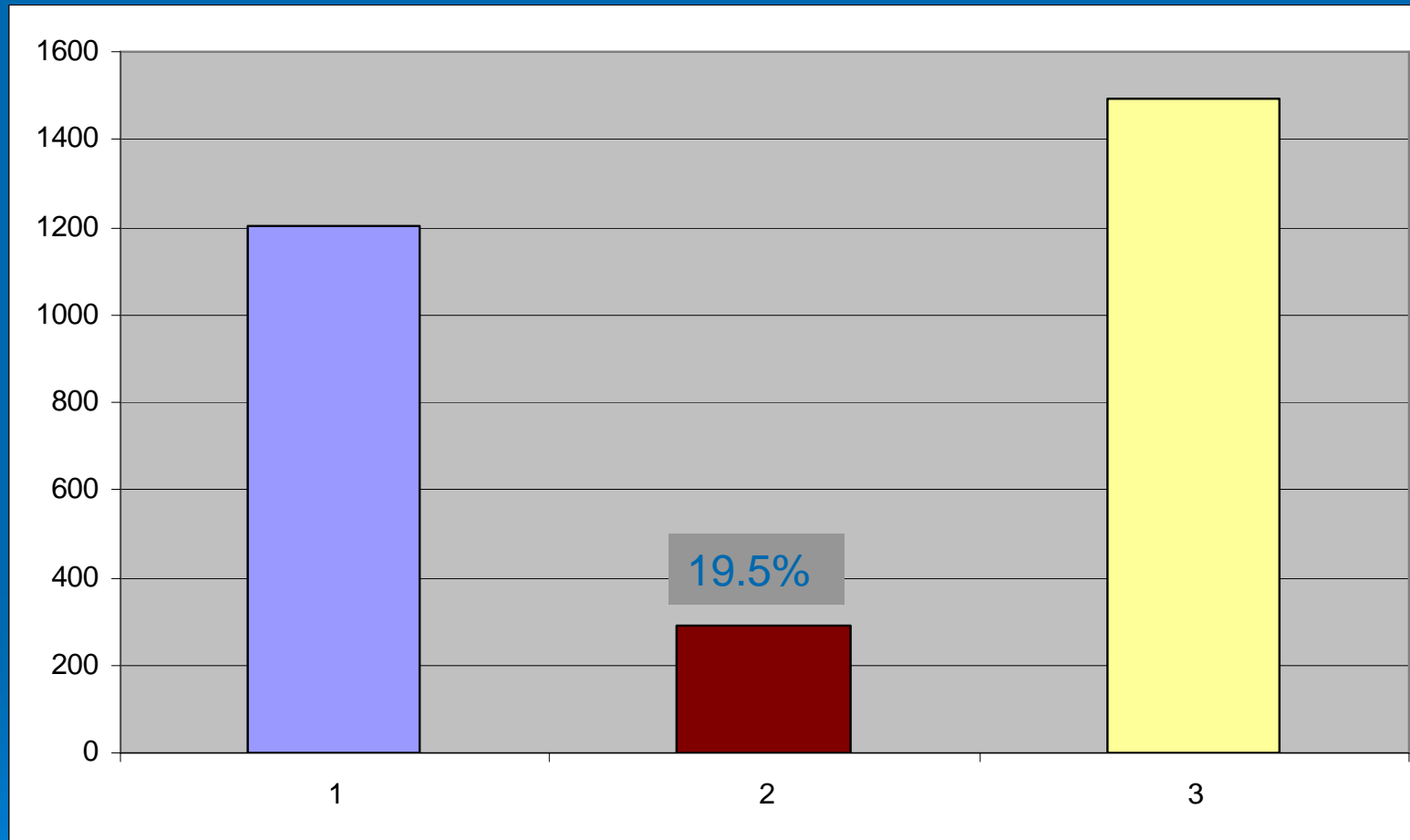
- Inpatient use for life support (less VAP, airway trauma, sedation)

High Intensity use

In Acute Respiratory Failure, What Drives Invasive vs. Non-Invasive Decision?

- Mask (non invasive PPV) the desirable first option
 - less VAP, more comfort, less trauma
- Severity and tempo of respiratory failure
 - Mask may take time to fit and adjust - rapid deterioration may require rapid establishment of invasive PPV.
- Airway protection
 - Aspiration risks, airway care may necessitate artificial airway

Temple University Hospital August 2007: Total Numbers of Invasive and Noninvasive Ventilated Patients



□ Invasive ventilation

■ Non-invasive ventilation

■ Total patients ventilated

NIV Start / Total Ventilation (NIV+MV)

